

Kelsey J.R.P. Byers

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SKILLS

Microbial culture maintenance; plasmid preparation, manipulation, and transformation (including use of markers); PCR (regular and multiplex); primer design; gel electrophoresis (nucleic acid and protein); Western blotting; *in vitro* transcription/translation; protein-binding microarrays; mutagenesis; genomic DNA extraction; candidate gene identification; genomic annotation; sterile techniques; laboratory safety and chemical waste disposal; Institutional Review Board applications.

EDUCATION

University of Washington, Seattle, WA: 2008-present

First-year PhD student, Department of Biology. Co-advised by Dr. Toby Bradshaw and Dr. Veronica Di Stilio. Expect to focus on molecular evolution, specifically variation and speciation of native species.

Massachusetts Institute of Technology, Cambridge, MA: 2003-2007

Graduated in June of 2007 with an S.B. in Biology. Cumulative GPA: 4.4/5.0

Relevant Coursework: (MIT course numbers available upon request)

Biology: Introduction to Experimental Biology and Communications, Genetics, Biochemistry, Cell Biology, Molecular Biology, Microbial Genetics Project Lab, Foundations of Computational and Systems Biology, Development and Evolution.

Chemistry: Organic Chemistry, Thermodynamics of Biomolecular Systems.

Other: Differential Equations, Structure and Interpretation of Computer Programs.

Minuteman Regional High School, Lexington, MA (Biotechnology Academy program): 1999-2003

Graduated in June of 2003 with a high school diploma and biotechnology certification. Cumulative GPA: 4.0/4.0

HONORS AND AWARDS

ARCS Foundation Fellowship, 2008-2011

GenOM Project Graduate Fellowship, 2008-2010

Graduate Opportunity Program Research Assistantship, 2008-2009 (three quarters of RA funding)

Plant Biology Fellowship, 2009-2010 (four quarters of RA funding)

RELATED EXPERIENCE

Technical Research Assistant, Bulyk Laboratory, Brigham and Women's Hospital/Harvard Medical School 08/07-06/08

Responsible for a large-scale protein-binding microarray screen for transcription factor binding sites in yeast. Have streamlined a process for screening potential factors beginning with purified protein and ending with full computational and experimental results, including use of *in vitro* transcription/translation for problematic factors.

Undergraduate Project Laboratory 09/05-12/05

“Developing methods for analysis of mycolic acids and their function in *Rhodococcus* sp. I24”

Used *Rhodococcus* as a model for study of mycolic acids in *Mycobacterium tuberculosis*. Utilized plasmid techniques and thin-layer chromatography to study a *Rhodococcus* ortholog of *mmaA3*, an *M. tuberculosis* mycolic synthesis gene.

Undergraduate Researcher, Polz Laboratory, MIT, Cambridge, MA 06/05-09/05

Worked in MIT's Department of Civil and Environmental Engineering. Performed PCR-based analysis and reconstruction of sequenced contigs into genomes from various species in the *Vibrio* genus of bacteria. Developed computational methodologies for efficient contig to genome reconstruction for the laboratory.

Undergraduate Researcher, Kaiser Laboratory, MIT, Cambridge, MA 06/04-09/04

Worked in MIT's Department of Biology. Performed independent research utilizing the yeast *Saccharomyces cerevisiae* to search for flavin membrane transporters in the endoplasmic reticulum.

Bioinformatics Research Intern, Baylor College of Medicine, Houston, TX 07/02-09/02

Worked in the Human Genome Sequencing Center. Helped develop annotation methodology for the Center and assisted on other human genome sequence analyses. Aiding in preparing human genome annotation data for the Hawk2 Human Annotation Workshop held at the Sanger Institute.

COMPUTER SKILLS

Familiarity with the Unix, Linux, Windows, and Macintosh operating systems and MS Office (most familiar with Unix/Linux)

Good knowledge of bioinformatics tools and applications, including extensive experience with the NCBI interface

Experience with HTML, LaTeX, and version control systems

Skill with Perl, particularly with process automation and bioinformatics data processing

ACTIVITIES AND INTERESTS

former member, MIT Committee on the Use of Humans as Experimental Subjects (the MIT IRB), 2005-2007

General class licensed amateur radio operator, callsign KB1ONA